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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,340	09/19/2008	Toshiro Oda	4852.91173	6997
24978	7590	07/18/2011		
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			EXAMINER YANG, JIE	
			ART UNIT 1733	PAPER NUMBER
			MAIL DATE 07/18/2011	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,340	<b>Applicant(s)</b> ODA, TOSHIRO	
	<b>Examiner</b> JIE YANG	<b>Art Unit</b> 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 9-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Application's election of Group II, Claims 6-8, drawn to a process of manufacturing a high silicon stainless steel with specific grain size, in the reply filed on 7/1/2011 is acknowledged without traverse (MPEP 818.03(a)). Claims 1-5 and 9-15 are withdrawn as non-elected claims; and Claims 6-8 remain for examination, wherein claims 6 and 7 are independent claims.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not

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required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 6-8 recites the broad recitation “a master alloy”, and the claim also recites “a high silicon stainless steel” which is the narrower statement of the range/limitation. The Applicant has not provided evidence to be able to manufacture a high silicon stainless steel from any master alloy (a master alloy may not even necessary to be a ferrous alloy).

Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, the Applicant uses term “high silicon stainless steel”, the term “high” is a relative term which renders the claim indefinite. The term “high” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 6-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, the Applicant uses term “later dropped” (claims 6 and 7) or “later changed” (claim 7), the term “later” is a relative term which renders the claim indefinite. The term “later” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one

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of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon (US 3,055,104, hereafter US'104) in view of Murata et al(JP 04063247A with English abstract, hereafter JP'247).

Regarding claims 6-8, US'104 teaches a process of preparing steel blanks especially suitable for drawing (Col.1, lines 10-15 of US'104) by flattening the ingot piece between the pressing die members (Fig.2, 4, and 5, and Col.3, lines 34-44 of US'104), which reads on the forging process with an impact load and/or a static load for manufacturing steel alloy as recited in the instant claims. US'104 does not specify the high silicon content in the alloy. JP'247 teaches a process for manufacture a high strength and high ductility stainless steel with high Si (1.0-7.0wt%Si) content (Abstract of JP'247). Therefore, It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to apply the high-silicon stainless steel for the process of US'104 because JP'247 discloses that the high-Si steel is suitable for hot plastic deformation (Table 2 of JP'247). US'104 teaches introducing the ingot piece with temperature range between 2000 and 2300°F (about 1093-1260°C—noted by the Examiner), which read on the loading step for forging as recited in the instant claims. The loading temperature range of 1093-1260°C taught by US'104 overlaps the claimed surface temperature range of 1100°C or higher as recited in the instant claims 6 and 7, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed temperature range as recited in the instant claims 6 and 7 from the temperature range disclosed by US'104, because US'104 in view of JP'247 discloses the same utility throughout the disclosed ranges. US'104 teaches that the pressed pieces have become heated enough to avoid lowering the temperature of the flattened disk blank unduly, which reads on the limitation of dropping the temperature not so low as to break the high-silicon stainless steel as recited in the instant claims 6-7. US'104 teaches applying pressing die at temperature 1300°F to 1400°F (about 704-760°C—noted by the examiner), which reads on the second loading process as recited in the instant

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claims 7 and 8. US'104 does not specify the second loading temperature range from 850 to 1050°C as recited in the instant claim 7, however, the second loading temperature range is recognized as a result-effective variable in term of forging result as evidenced by JP'247. JP'247 provides different secondary deformations for high-Si stainless steel under different operation temperatures to obtain different forging results (Table 2 and Fig.1-2 of J'247). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the result-effective variable, that is temperature for the second forging operation as demonstrated by JP'247 in the process of US'104 in order to obtain the forged steel with the desired properties (Table 2 and Fig.1-2 of JP'247). US'104 teaches refining the grain size of the steel (Fig.9 and Col.4, lines 46-74 of US'104) and JP'247 further teaches to control the grain size by forging to obtain fine grains of less or equal to 1 $\mu$ m (Abstract and Fig.2 of JP'247), which is within the claimed grain size range of 15 $\mu$ m or less as recited in the instant claims.

Still regarding claim 8, US'104 teaches gradually compressing and flatten (Col.3, lines 45-53 of US'104) and US'104 teaches the temperature of second loading is lower than

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the temperature of the first loading (claims 2 and 4 and Col.4, lines 11-38 of US'104), which reads on the limitation that a lowest surface temperature of each second loading application step is lower than a lowest surface temperature for a previous step as recited in the instant claim. JP'247 provides evidence to show obtaining smaller grain size with forging at lower temperature range (Fig.2 of JP'247). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the secondary forging temperature according to the desired grain size as demonstrated by JP'247 in the process of US'104 in order to obtain the forged steel with the desired properties (Table 2 and Fig.1-2 of JP'247).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884.

The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jie Yang/  
Patent Examiner, Art Unit 1733